REMARKS

The Examiner has rejected claims 1-6 under 35 U.S.C. 103(a) as being unpatentable over Etheridge et al (5,986,637) in view of Alexander (6,201,384).

Regarding claim 1, Etheridge et al discloses that the claimed feature of a method of operating an oscilloscope that is capable of displaying simultaneously multiple waveforms representing thine evolution of a signal during respective acquisition intervals, comprising:

a) acquiring [30] waveform data using a first set of acquisition parameters (See Fig.1, Fig. 3)

b) generating [50] a display based on the waveform data acquired in step a), in the event that the display generated in step b) includes a waveform that is visually distinct from other displayed waveforms (See Fig. 1, Fig. 3, Abstract, col. 11, lines 44-46)

c) selecting [57] a feature [i.e. "threshold number", "color"] that distinguishes the visually distinct waveform from other displayed waveforms, (See Fig. 1, Fig. 3, Abstract, col. 11, lines 46-51)

d) automatically deriving [55, 57] acquisition parameters that discriminate between the selected feature and other features of the displayed waveforms, (See Fig. 1, Fig. 3, Abstract, col. 3, line 35 - col. 4, line 6, col. 11, line 20 - col.12, line 17)

e) acquiring [30] waveform data using the acquisition parameters derives in step d), and

f) generating [50] a display ["new composition image"] based on the waveform data acquired in step e) (See Fig. 1, Fig. 3, col. 3, line 35 - col. 4, line 6, col. 11 lines 20 - col. 12 line 17).

Etheridge et al does not specifically disclose that "selecting a feature, and deriving acquisition parameters", as recited in above claim. However, such limitations are shown in the teaching of Alexander. ["the signal scaling system determines one or more displayed waveform scaling parameters to cause portion of selected displayed waveforms appearing within a rescaling rectangle..." and " a scaling computation unit calculates the displayed waveform scaling parameters based on specification of the rescaling rectangle and current scaling parameters" (See Abstract, Fig. 1 Fig. 3, Fig. 4, col 2, line 54 - col. 3, line 25, col. 3, line 57 - col.4, lines 19). It would have been obvious to one skilled in the art to incorporate the teaching of Alexander into the teaching of Etheridge et al, in order to provide "a simple, uncomplicated means for enabling a user to perform a large number of control steps and operation and which enables the user to anticipate the resulting effect on the displayed

waveform" (See col. 2, lines 40-51 in Alexander), as such an improvement is also advantageously desirable in the teaching of Etheridge et al for providing clear visual representation for selecting and combining various display parameters with simple and uncomplicated operation at faster processing time.

Regarding claim 2, Etheridge et al discloses that step c) includes graphically defining a template that specifies the selected feature and step d) includes employing information regarding the template to derive additional acquisition parameters. (See Fig. 1, Fig, 3, col. 12,
lines 9-16)

Regarding claim 3, Etheridge et al discloses that the oscilloscope has multiple trigger modes [20], step c) includes graphically defining a template that specifies the selected feature and step d) includes employing information regarding the template to select a trigger mode for preferentially acquiring waveforms that include the selected feature. (See Fig. 1, Fig. 2, Fig. 3, Abstract, col. 3, lines 35 - col. 4, lines 6)

Regarding claim 4, refer to the discussion for the claim hereinabove, Etheridge et al discloses that the template is a scalable rectangular box and step c) includes positioning and sizing the box so that it contains the selected feature. (See Fig. 1, Fig. 3, Abstract, col. 3, line 35 - col. 4, line 6)

Regarding claim 5, refer to the discussion for the claim 1 hereinabove, Etheridge et al discloses that the oscilloscope has a display screen on which the waveforms are displayed and the template is a sketch generated on the display screen. (See Fig. 1, Fig. 3, Abstract, col. 3, line 35 - col. 4, lines 6)

Regarding claim 6, claim 6 is similar in scope to the claim 1, and thus the rejection of claim 1 hereinabove is also applicable to claim 6.

Applicants' claim invention is an oscilloscope and its method of operation that is capable of displaying simultaneously multiple waveforms representing time evolution of a signal during respective acquisition intervals. The oscilloscope has acquisition means for acquiring waveform data using a first set of acquisition parameters and display means for generating a display based on the waveform data acquired by the acquisition means. User control means are provided for selecting a feature that distinguishes a visually distinct waveform from other displayed waveforms when the display generated by the display means includes a waveform that is visually distinct from other displayed waveforms. An oscilloscope control means is provided for automatically deriving acquisition parameters

that discriminate between the selected feature and other features of the displayed waveforms, and for supplying the derived acquisition parameters to the acquisition means, whereby the acquisition means can acquire waveform data using the derived acquisition parameters and the display means can generate a display based on the waveform data acquired by the acquisition means using the derived acquisition parameters.

Etheridge et al teaches a digital oscilloscope having significantly higher "live" time, i.e. time during which the input signal is being actively monitored, by using high speed data manipulating and compression in a rasterizer acquisition system prior to loading a display raster memory. The digital oscilloscope has acquisition circuitry for digitizing and storing digital data samples of an input signal as acquisition records in an acquisition memory. The digital data samples of the acquisition memory are provided to an acquisition rasterizer. The rasterizer contains circuitry for concurrently rasterizing and combining the results of several acquisitions together and combining with a stored composite raster image to produce a new composite raster image, while additional acquisition records are being created and stored in the acquisition memory. A display system containing the another raster memory takes the composite raster images after they contain the results of many acquisitions and overlays these single bit raster images on the multi-bit raster image of the display raster memory. The number of new pixels turned on as a result of each acquisition can be counted during the combining process and used to stop acquisitions, signal the operator, or specially treat that particular acquisition when the number of new pixels created by a particular acquisition exceeds a predetermined value.

Alexander teaches a graphical user interface for a signal sampling system which controls a waveform display region. A signal scaling system determines one or more displayed waveform scaling parameters to cause a portion of selected display waveforms appearing within a rescaling rectangle to occupy a predetermined portion of the waveform display region. For each of the selected displayed waveforms, the scaling parameters may include horizontal scaling, horizontal offset, vertical scaling and vertical offset. The signal scaling system includes a rescaling rectangle specification unit for outlining the rescaling rectangle on the waveform display region between use-specified start and end points. A scaling computation unit calculates the displayed waveform scaling parameters based upon specifications of the rescaling rectangle generated by the rescaling rectangle specification unit and current scaling parameters generated by the signal measurement instrument.

Combining the teachings of Etheridge et al with Alexander do not render obvious

the claims of Applicants' invention. Etheridge et al teaches a digital oscilloscope having a rasterizer acquisition system for high speed data manipulation and compression prior to loading a display raster memory for a significantly higher "live" time, i.e. time during which the input signal is being actively monitored. Alexander teaches a signal scaling system for a graphical user interface that provides a user definable region of a waveform display that is rescaled or magnified to fill a display region. In contradistinction, Applicants' claimed invention recites an oscilloscope and method of use having a control means for selecting a feature that distinguishes a visually distinct waveform from other displayed waveforms when the display generated by the display means. An oscilloscope control means automatically derives acquisition parameters that discriminate between the selected feature and other features of the displayed waveforms, and for supplying the derived acquisition parameters to the acquisition means. The acquisition means acquires waveform data using the derived acquisition parameters and the display means can generate a display based on the waveform data acquired by the acquisition means using the derived acquisition parameters. Neither Etheridge et al nor Alexander teach, hint or suggest an oscilloscope and method of use where a feature that distinguishes the visually distinct waveform from other displayed waveforms is selected, acquisition parameters are automatically derived that discriminate between the selected feature and other features of the displayed waveform, and acquiring waveform data using the automatically derived acquisition parameters. Alexander specifically teaches at col. 11, lines 57-66 "... that the rescaled plus signal 313 exhibits the same amplitude and timing attributes as before the rescaling operation is performed. ... the portion of the original signal waveform 308 which extends beyond the boundaries of the rescaling rectangle 310 are not visible on the waveform display region 302 in Fig. 3B." It is obvious that Alexander is not deriving acquisition parameters from the rescaling rectangle whereas Applicants' claimed invention recites automatically deriving acquisition parameters that discriminate between the selected feature and other features in the displayed waveform. Nor does Alexander acquire waveform data using automatically derived acquisition parameters that discriminates between the selected feature and other features in the displayed waveform.

Claims 2-5 depend from independent base claim 1 and are deem to be allowable in the view of the Applicants above remarks distinguishing Applicants' claimed invention over the references of Etheridge et al and Alexander.

In view of the above remarks, Applicants respectfully request that the Examiner

withdraw the rejection of claims 1-6 under 35 U.S.C. 103(a) and pass this case to issue.

In accordance with current Patent Office practice, the Examiner is expressly authorized to call the undersigned agent at the number listed below if it is deemed the application is in other than condition for allowance or if prosecution can be expedited.

Respectfully submitted,

By William K. Bucher

William K. Bucher
Reg. No. 32,686
Patent Agent for Applicants

TEKTRONIX, INC.
P. O. Box 500 (50-LAW)
Beaverton, OR 97077
Phone (503) 627-7267 or (800) 835-9433
Attorney Docket No. 6836-US

May 1, 2003